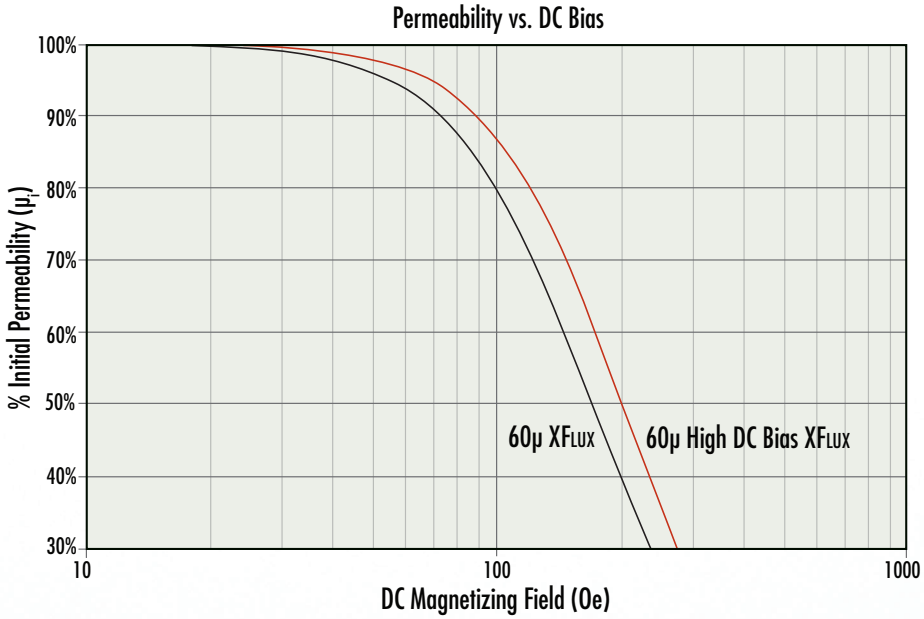
High DC Bias XFLUX® Cores

High DC Bias XFLUX® cores offer the same high saturation found in standard silicon-iron XFLUX while providing up to 20% improvement in DC bias.

High DC Bias XFLUX allows for smaller core size for use in space-conscious inductor designs. Use of copper wire is minimized by maintaining inductance using less turns, resulting in lower copper losses and savings in overall component costs.



Perm	Perm vs. DC Bias (Oe)		Core Loss (mW/cm³)
26μ	**80%**	**50%**	$W_{1000\ G,\ 50\ kHz}$
High DCB XFLUX	285	505	725
XFLUX	270	450	600

Perm	Perm vs. DC Bias (Oe)		Core Loss (mW/cm³)
60μ	**80%**	**50%**	$W_{1000\ G,\ 50\ kHz}$
High DCB XFLUX	120	200	625
XFLUX	100	170	575

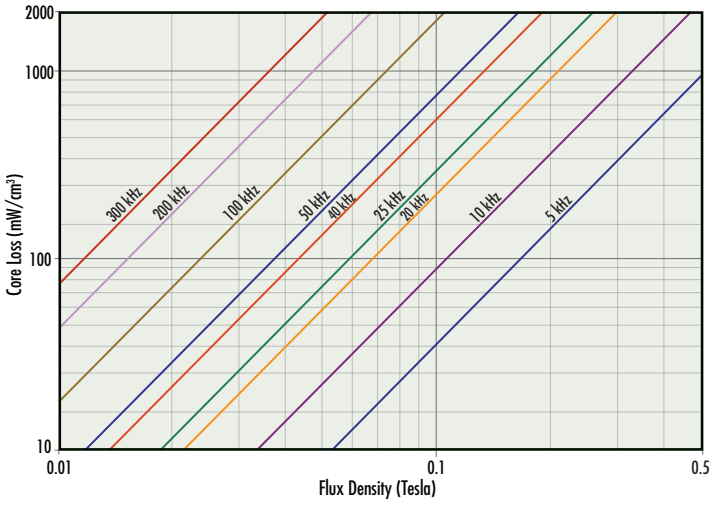
HOW TO ORDER

00 78 050 A7 S01

- S01 → High DC Bias variant XFLUX
- A7 → Core finish code (A7 = 2,000 VAC)
- 050 → Catalog Number (size)
- 78 → Material Code (78 = XFLUX)
- 00 → Grading (00 = not graded)

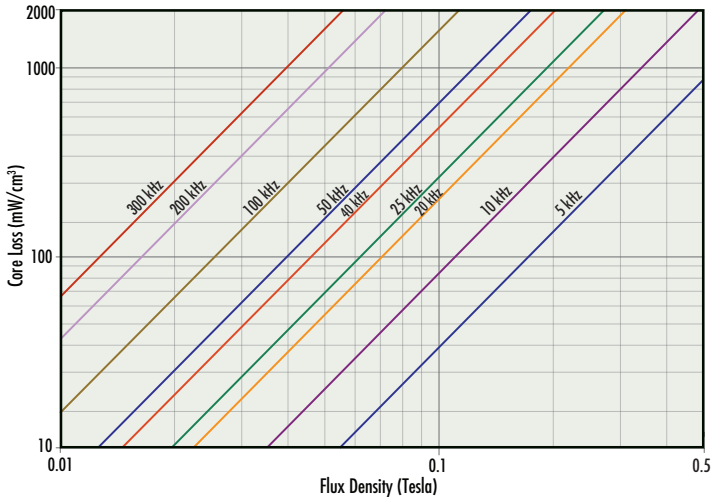
Core Loss Density Toroids 26µ

$P = a(B^b)(f^c)$		
a	b	c
443.53	2.015	1.312



Core Loss Density Toroids 40µ, 60µ

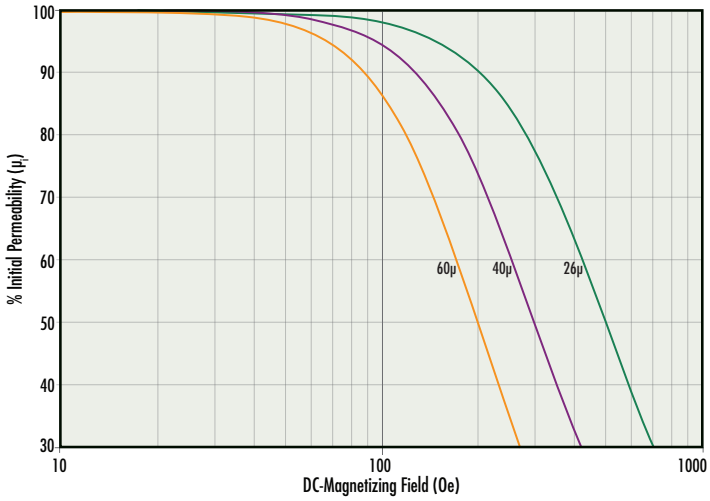
$P = a(B^b)(f^c)$		
a	b	c
442.15	2.015	1.283



Permeability vs. DC Bias

$$\% \text{ Initial Permeability} = \frac{1}{a + bH^c}$$

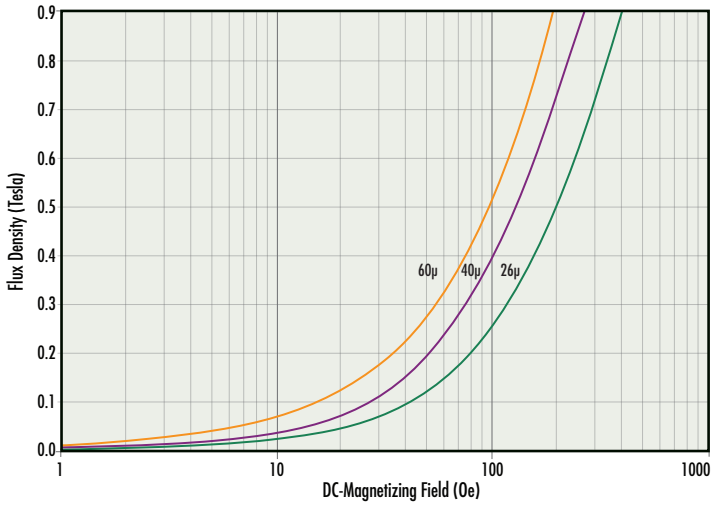
	a	b	c
26	0.01	2.81E-09	2.423
40	0.01	4.25E-09	2.572
60	0.01	5.69E-09	2.714



DC Magnetization

$$B = \left[\frac{a + bH + cH^2}{1 + dH + eH^2}\right]^x \quad \text{Units: B in Tesla, H in Oe}$$

Perm	a	b	c	d	e	x
26µ	4.540E-02	1.850E-02	5.340E-04	1.130E-01	3.260E-04	1.780
40µ	7.300E-02	1.830E-02	6.420E-04	8.640E-02	4.150E-04	1.820
60µ	2.310E-03	4.330E-03	6.820E-06	9.420E-04	6.580E-07	0.852



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